

**UNITED STATES DISTRICT COURT  
DISTRICT OF MASSACHUSETTS**

SINGULAR COMPUTING LLC,

Plaintiff,

v.

GOOGLE LLC,

Defendant.

Civil Action No. 1:19-cv-12551-FDS

Hon. F. Dennis Saylor IV

ORAL ARGUMENT REQUESTED

**PLAINTIFF’S REPLY IN SUPPORT OF ITS MOTION FOR LEAVE  
TO SUPPLEMENT INFRINGEMENT CONTENTIONS  
TO CITE ACCUSED SOURCE CODE**

Plaintiff, Singular Computing LLC (“Singular”), respectfully submits this reply in support of its motion for leave to serve supplemental infringement contentions to cite source code used in the accused devices.<sup>1</sup> For the reasons set forth herein and in its opening brief, Singular requests that this motion be granted.

**I. ARGUMENT**

**A. DILIGENCE**

Google incorrectly argues that Singular offers “no explanation” for why it moves to supplement to add source code citations. *See* Opp. at 1. Singular explained why it moves at this time in detail in its opening brief. *See* Dkt. No. 355, pp. 1-5. As set forth therein, Singular diligently began inspecting the source code used in the accused TPU devices in December 2020.<sup>2</sup> As the source code produced by Google was incomplete, Singular was forced to conduct

---

<sup>1</sup> After Singular filed the present motion, Google filed a motion for leave to amend its contentions. *See* Dkt. No. 359.

<sup>2</sup> Fact discovery did not close until July 23, 2021. *See* Dkt. No. 70.

several follow-up inspections during the summer of 2021.<sup>3</sup> *Id.* at 2-3. Unfortunately, Google’s production of source code for review was again incomplete. Accordingly, counsel for Singular wrote to counsel for Google specifically identifying the incomplete source code production. *See* Ex. A.<sup>4</sup> A day later, counsel for Singular wrote to counsel for Google informing Google that Singular would seek to supplement its infringement contentions once Google produced the missing critical source code.<sup>5</sup> *See* Ex. B.

On September 8, 2021, counsel for Singular asked counsel for Google when the designated source code printouts would be available and requested that he be permitted to collect the source code printouts that day. *See* Ex. C. Google refused to produce the requested source code due to the case being stayed through May 12, 2022. *See id.* (“Given that the case is now stayed . . . Singular’s request for printing source code at this time is premature”). Eight months later, once the stay had expired, counsel for Singular duly wrote to counsel for Google to renew Singular’s requests for source code printouts. Ex. D.

Counsel for Google objected again, this time on the grounds that “Judge Saylor has not reopened fact discovery, nor has he set any expert discovery deadlines.” *See* Ex. E. After further correspondence and a meet-and-confer, the parties agreed that Google would produce copies of the pared down code and Singular’s expert would be allowed a further inspection of the code.

---

<sup>3</sup> The reason this took so much time was Google’s delay tactics (*see* Singular’s Opposition to Google’s Motion to Stay, Dkt. No. 201 at pp. 10-12). As a result, Singular did not take the depositions of Google’s technical witnesses until the middle of July 2021. Singular also needed to find a replacement for its source code expert, Dr. Reda.

<sup>4</sup> Unless otherwise noted, all exhibits are attached to the accompanying Declaration of Kevin Gannon (“Gannon Decl.”) that was filed with Singular’s opening brief.

<sup>5</sup> Because discovery closed that same day (July 23, 2021), Singular was forced to file a motion to compel. *See* Dkt. No. 262. Although the motion was denied, Google agreed to produce some specifically identified source code that was missing and agreed to make the source code computer accessible to Singular in Boston for further review. *See* Hearing Transcript (Dkt. No. 315) at pp. 6, 17, 29.

*See* Ex. F. The further inspection of code occurred on July 8 and 11, 2022. *See* Gannon Decl., ¶ 2. Thereafter, counsel for Singular identified additional code to be produced. Counsel for Singular collected those code printouts on July 19, 2022. *Id.* After reviewing the printouts, Singular promptly filed this motion to supplement to add source code citations on August 11, 2022.

As demonstrated above, Google's argument that Singular somehow unduly delayed in reviewing and obtaining printouts of the source code should be rejected. Any purported delay is the fault of Google by failing to produce complete copies of the source code in timely fashion and obtaining a stay of the case for a year pending resolution of its IPR proceedings. Google's argument that Singular should have requested printouts of the source code earlier (Opp. at 10) likewise fails. At Google's insistence, the number of pages of source code that Singular could obtain was limited in this case.<sup>6</sup> As a result of that limitation, it made no sense for Singular to request printouts until it completed its review of the accused source code.

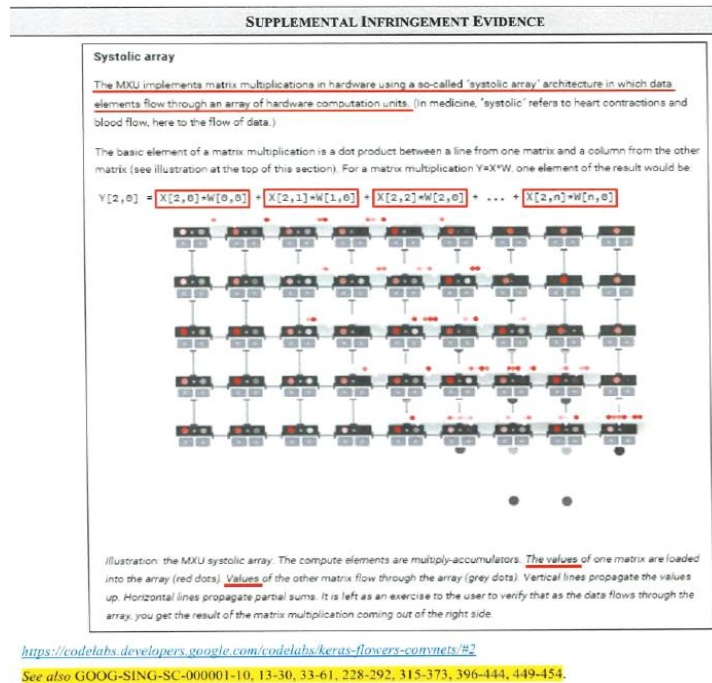
Now that production of the source code has been completed, Singular should be permitted to supplement its contentions to cite to the source code. As explained in its opening brief, Singular does not seek to add any infringement theories. Singular submitted its original contention claim charts and its supplemental contention claim charts as Exhibits H, I and M and N, respectively, to the Declaration of Kevin Gannon. *See* Dkt. No. 355. As can be seen therein, the only difference are the citations to source code highlighted in yellow on several pages of the supplemental charts. Thus, Google's assertion that Singular is changing its theories of infringement should be rejected.

---

<sup>6</sup> For example, Singular has been limited to 25 consecutive pages of source code and 500 in aggregate. *See* Protective Order (Dkt. No. 87) at p. 17.

Given the recent completion of the inspection and production of the source code, this motion to supplement is timely. *See, e.g., SpeedTrack, Inc. v. Amazon.com, Inc.*, No. 4:09-cv-4479, 2018 WL 3328423, at \*4 (N.D. Cal. Jul. 6, 2018) (“the Court grants Plaintiff leave to amend the infringement contentions once it has had the opportunity to review Defendant’s source code”); *see also Int’l Bus. Machs. v. Zillow Group, Inc.*, No. C20-851, 2020 WL 3266220, at \*1 (W.D. Wash. Jun. 17, 2020) (plaintiff is “to amend its infringement contentions within thirty-five (35) days after any disclosure of the non-public source code at issue”); *Delphix Corp. v. Actifio, Inc.*, No. 13-CV-4613, 2015 WL 5693722, at \*4 (N.D. Cal. Sept. 29, 2015) (granting leave to amend contentions where “the proposed contentions are based on recently discovered information [including source code] that is not publicly available.”)

Contrary to Google’s argument, Singular has not attempted “to incorporate vast swaths of source code without any explanation as to that code’s supposed import.” Opp. at 1. For example, Singular cited to specific portions of the source code (highlighted in yellow), as seen below:

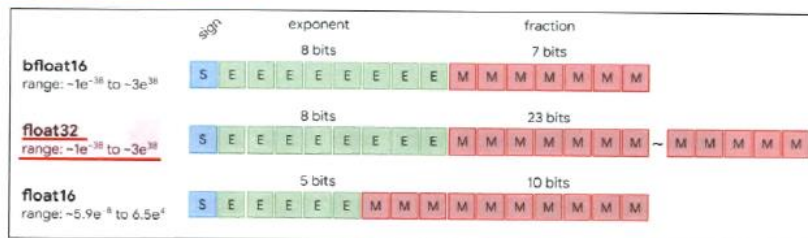


*See* Dkt. No. 355-16, p. 7.

## SUPPLEMENTAL INFRINGEMENT EVIDENCE

- “Each TPU core has scalar, vector, and matrix units (MXU). The MXU provides the bulk of the compute power in a TPU chip. Each MXU is capable of performing 16K multiply-accumulate operations in each cycle. While **the MXU inputs and outputs are 32-bit floating point values**, the MXU performs multiplies at reduced bfloat16 precision. Bfloat16 is a 16-bit floating point representation that provides better training and model accuracy than the IEEE half-precision representation.”  
<https://cloud.google.com/tpu/docs/system-architecture>
- “The following figure shows three floating-point[] formats
  - **fp32 - IEEE single-precision floating-point**
  - fp16 - IEEE half-precision floating point
  - bfloat16 - 16-bit *brain* floating point<sup>7</sup>

<https://cloud.google.com/tpu/docs/bfloat16>



*Id.*

See also GOOG-SING-SC-45-61, 435-444, 449-454.

*Id.* at p. 8.

## B. GOOGLE WILL NOT BE PREJUDICED BY THE SUPPLEMENTATION

Google will not be prejudiced by this supplementation. Singular’s infringement theories have not changed. Singular’s original claim charts are submitted as exhibits H-I. The updated supplemental claim charts are submitted as exhibits M-N. As can be seen from a comparison of the two sets of charts, the only supplementation is the addition of cites to source code. Importantly, no trial date has been set, no dispositive motions have been filed,<sup>7</sup> and expert reports have not been exchanged. Thus, Google will not suffer prejudice by this supplementation of citations to its own source code. *See, e.g., Cloud Farm Assocs., L.P. v. Volkswagen Grp. of Am.*, No. 10-502, 2012 WL 3069390, at \*6 (D. Del. Jul. 27, 2012) (allowing amendment where “the parties have already engaged in substantial discovery, no trial date has yet been set, case dispositive motions have not been filed, and expert reports have not been exchanged.”)

<sup>7</sup> With the exception of Google’s early motions to dismiss alleging invalidity for lack of patentability under 35 U.S.C. § 101. *See* Dkt. No. 22.

Google asserts that “Singular has still not provided infringement contentions that meaningfully elucidate Singular’s theories.” Opp. at 9. Google’s argument should be rejected. Google raised this allegation regarding Singular’s infringement contentions in September 2020. Thereafter, the parties exchanged correspondence and met-and-conferred regarding the issue. Following this, Google did not complain about the sufficiency of the contentions except for its demand for the Singular test code and results (used by Singular in the testing of the accused products) cited in the contentions.<sup>8</sup> In addition, when opposing Singular’s motion to compel source code related to the accused products (Dkt. No. 262), counsel for Google had no problem understanding Singular’s infringement theories and the accused functionality when they unilaterally determined the relevant source code to be produced for inspection in this case:

MR. BRUNS: Well, I think we do understand the accused functionality here, and we've produced the code that relates to it. We've worked with engineers to identify the code and have produced it.

Hearing Transcript (Dkt. No. 315) at p. 24. Thus, it is a little much for Google to now attempt to resurrect this argument for the purpose of opposing Singular’s motion to supplement.

Finally, Google attempts to distinguish several of the cases cited by Singular. Opp. at 11-12. Google argues that, in *SpeedTrack v. Amazon*, “the defendant had not even completed its source code production when the plaintiff sought leave to amend its infringement contentions” and, in *IBM v. Zillow*, “the defendant had not yet produced source code.” *Id.* at 11. Google does not explain how that is pertinent here where Singular moves to supplement promptly after it obtained printouts of Google’s source code<sup>9</sup> and the source code production was prolonged by Google’s incomplete production thereof as described above. Similarly, Google argues that, in

---

<sup>8</sup> This remaining dispute resulted in motion practice during which Singular agreed to produce the code and results.

<sup>9</sup> As set forth *supra*, Singular first obtained the printouts of Google’s code on July 19, 2022.

*Delphix v. Actifio*, the plaintiff “was diligent in moving to amend its infringement contentions after taking only two months to review source code and technical documentation.” *Id.* at 11-12. Here, as explained above, Singular was diligent in making multiple inspections of the source code (due to Google’s repeated incomplete productions of code) and, thereafter, filing this motion after it obtained copies of the code in July 2022. Thus, Google’s attempt to distinguish these cases fails.

## II. CONCLUSION

For the reasons set forth above, Singular requests that this motion be granted.

Dated: September 1, 2022

Respectfully submitted,

/s/ Paul J. Hayes

Paul J. Hayes (BBO #227000)

Matthew D. Vella (BBO #660171)

Kevin Gannon (BBO #640931)

Daniel McGonagle (BBO #690084)

Brian Seeve (BBO #670455)

**PRINCE LOBEL TYE LLP**

One International Place, Suite 3700

Boston, MA 02110

Tel: (617) 456-8000

Email: phayes@princelobel.com

Email: mvella@princelobel.com

Email: kgannon@princelobel.com

Email: dmcgonagle@princelobel.com

Email: bseeve@princelobel.com

ATTORNEYS FOR THE PLAINTIFF

## **CERTIFICATE OF SERVICE**

I certify that all counsel of record who have consented to electronic service are being served with a copy of this document via the Court’s CM/ECF system.

/s/ Paul J. Hayes